Manning Challenges for the Afloat Logistic & Sea Lift Capability (ALSC) Ship

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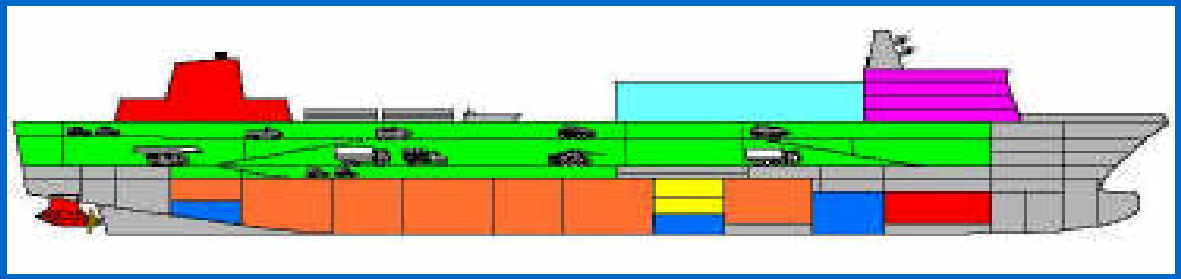
Outline

- ALSC manning concept
- ALSC mission profile
- Manning premise
- Manning study

ALSC manning concept

The manning concept of ALSC must **satisfy all operational mission, damage control, training, and helicopter operations requirements**. The manning level directly impacts the operational costs as well as the size of the superstructure/deck house and hull



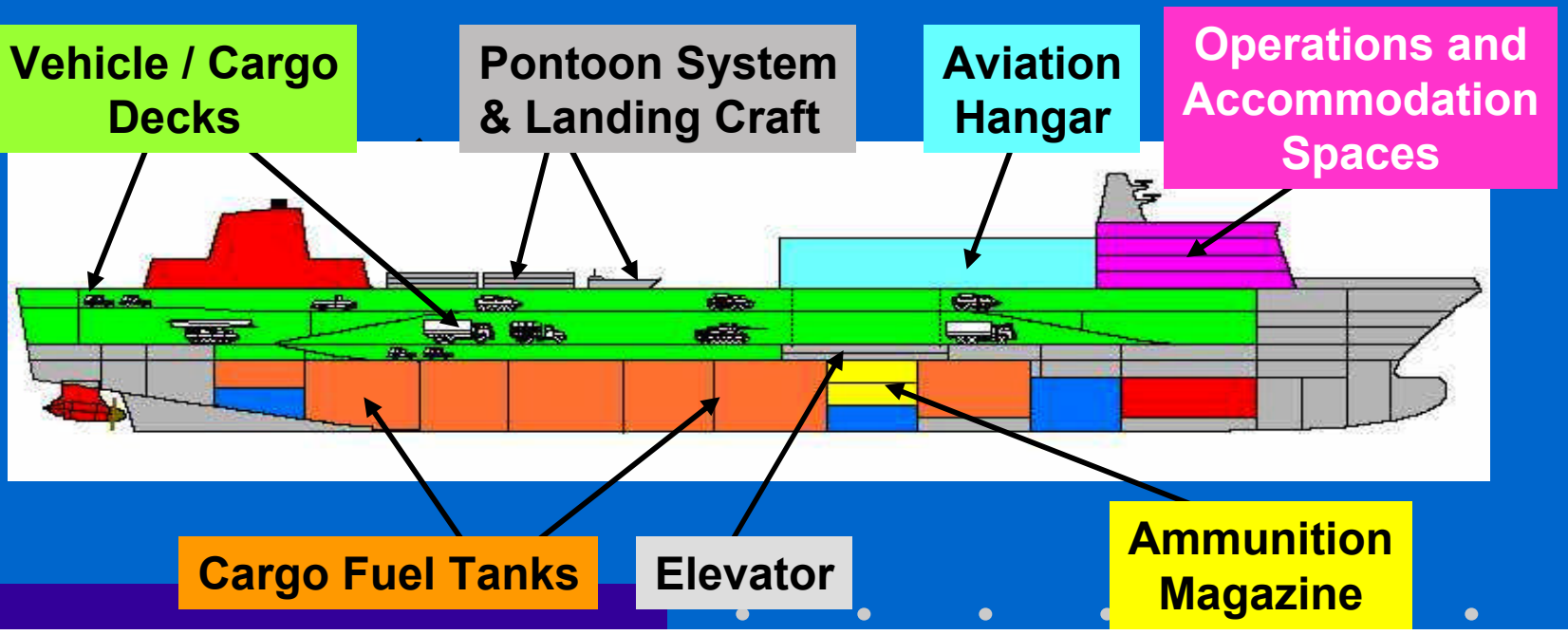
ALSC missions

ALSC ships will be manned by mixed gender naval and support personnel with the crew size and composition determined by the concept of employment for:

- **strategic sealift** for the transportation of large volumes of equipment and supplies over long distances in support of deployed national or allied forces
- **underway support** to Canadian and allied naval task groups
- in-theatre, sea-based **command and control and joint/combined force support for forces ashore**

Sea Lift

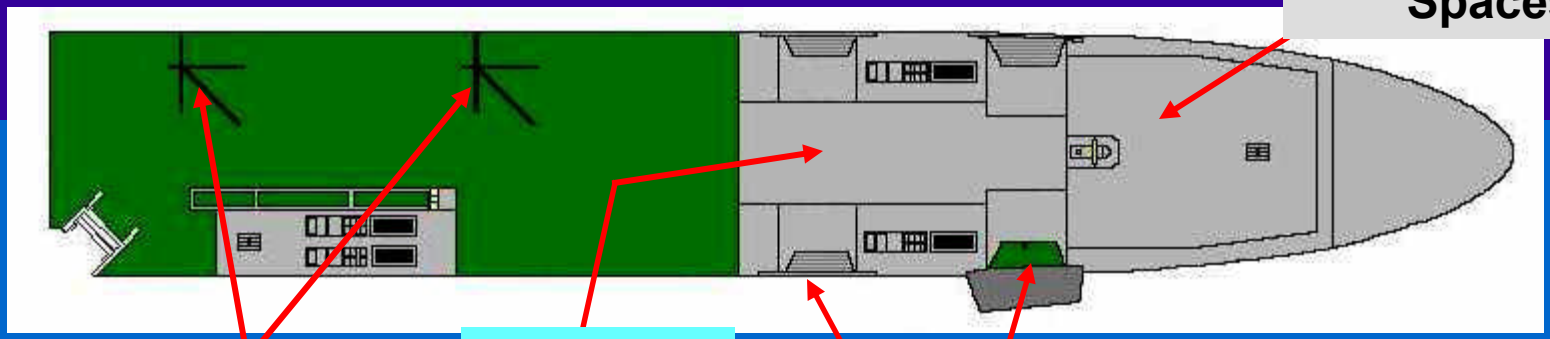
- Variety of Land Vehicles
- Nominal capacity 2500 lane meters per ship
- Containerised stores (20 foot ISO units)
- Helicopters: Maritime and Tactical
- Ammunition
- No troops



Support Naval Task Group

- Maintain PROTECTEUR Class AOR capability with minor enhancements where necessary
- Fuelling / transferring stores and ammo
- Task Group medical support
- Provide 2nd line helicopter maintenance
- Monitor tactical and operational picture
- Operate maritime helicopters/UAVs
- Self-defence capability

Support Naval Task Group



Operations & Accommodation Spaces

Helicopter Operating Areas

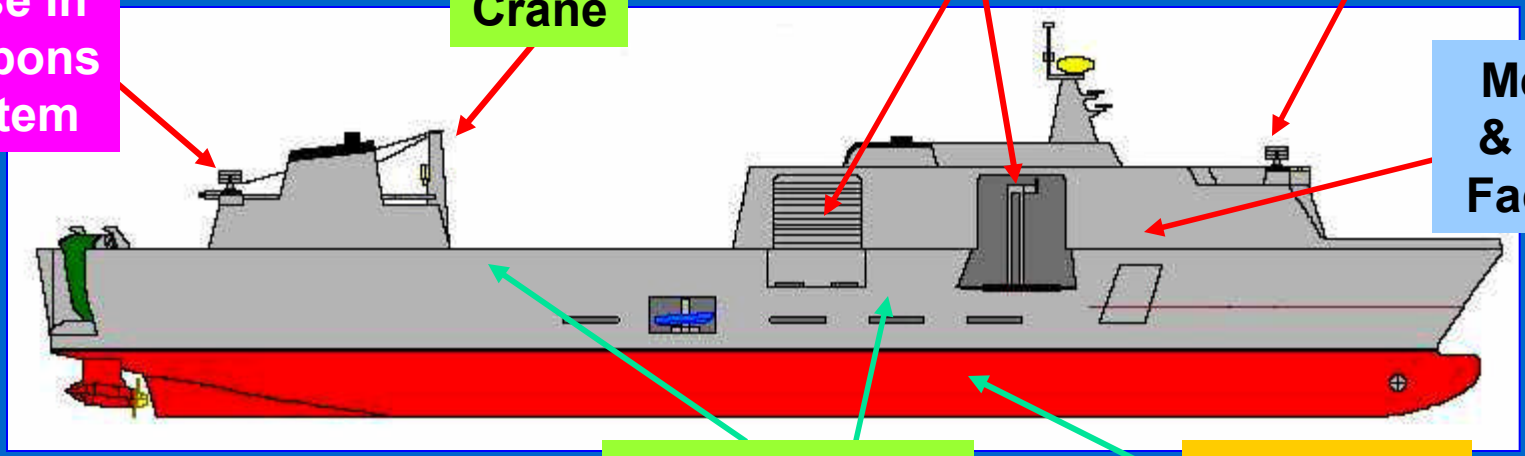
Helicopter Hangar

Replenishment-at-Sea Systems

Close In Weapons System

Close In Weapons System

Cargo Crane



Medical & Dental Facilities

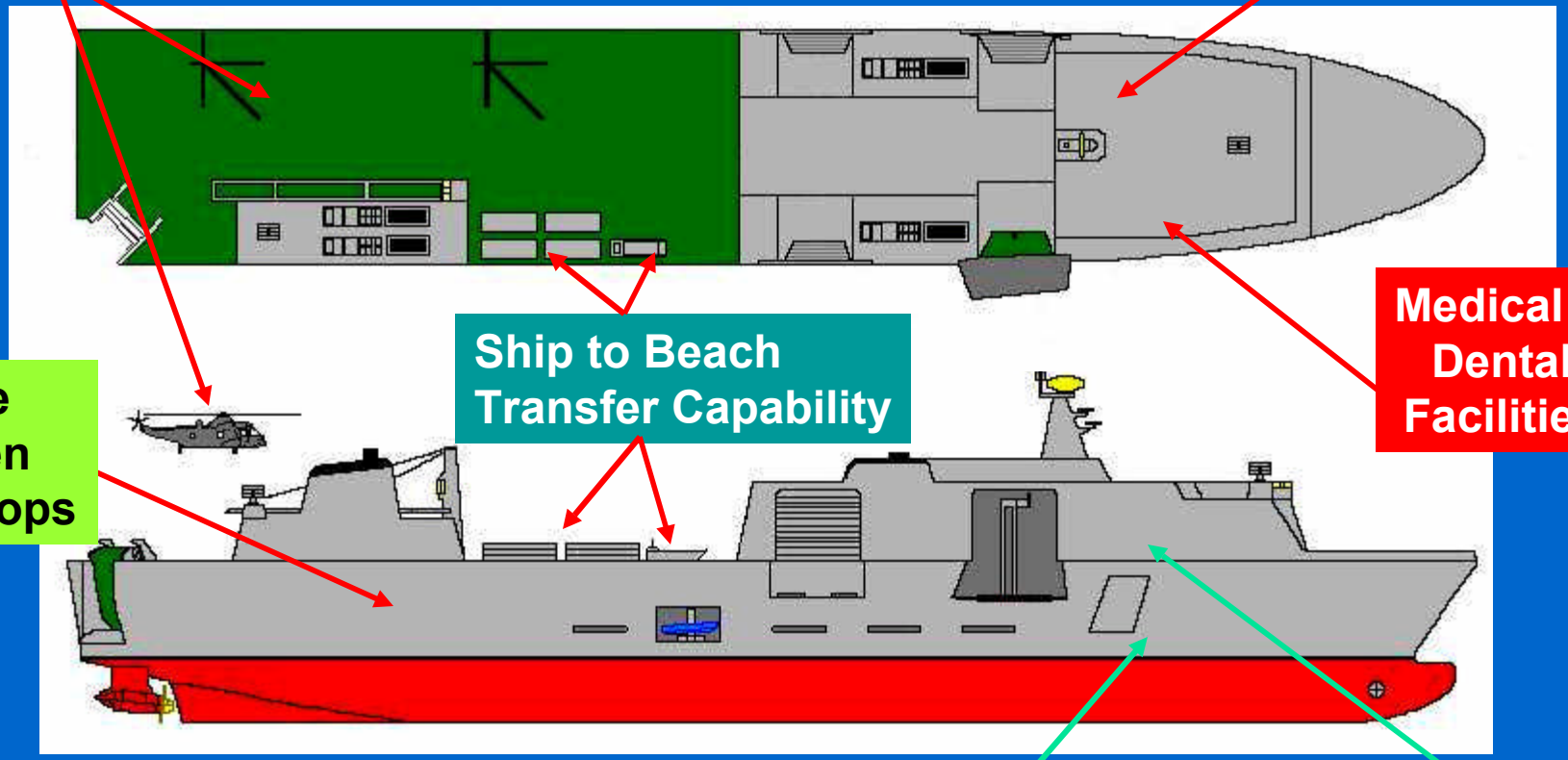
Vehicle /Cargo Decks

Cargo Fuel Tanks

Support to Forces Ashore

- Support a limited JTFHQ onboard (75 personnel)
- Transport full JTFHQ equipment and stores - provide staging for operations - move ashore when feasible
- Role 3 medical support
- Rear party link for deployed forces: VERTREP, maintenance
- Support UAV's
- Support operation of tactical helos from ALSC Deck in theatre
- Safe haven for troops

Support to Forces Ashore



Manning Requirements

- manning in the first and second degrees of readiness
- sea and harbour duty watches
- daily departmental work
- replenishment at sea (RAS)
- all aspects of stores and cargo handling, including embarking, striking down, marshalling, assembling pallets/loads and offloading by RAS, VERTREP, vehicle ramps to a jetty, barge or other transfer system, crane or ship's boats
- entering and leaving harbour
- cleaning stations and ship’s husbandry
- maintenance of all systems in the ship in a safe working condition
- fire fighting and damage control, including flight deck and vehicle deck fire fighting and rescue
- assuming the highest degree of NBC readiness
- launching, recovering and operating the ship’s boats with a full boarding party embarked
- operating the ship when a prize or salvage crew is disembarked to another vessel

Basic Premise

Manning is determined by the **allocation of functions** to hardware, software, personnel or off-board (including combinations) early in the design phase. The allocation of functions is predicated on decomposition of the results of mission analysis into discernible functions. Allocation of functions should primarily be **based on costs** - the total cost of human execution of a function includes the system life cycle cost of the trained operators, maintainers and supervisors who are required to perform the function.

Tradeoffs

- Alternative maintenance concepts
- Alternative ships husbandry concepts
- Alternative damage control concepts
- Alternative crew organizational concepts
- Alternative crew skill sets
- Labour saving job aids

Task Analysis

Functions are further decomposed into tasks. Task analysis provides a means of verifying that representative personnel can adequately perform the task.

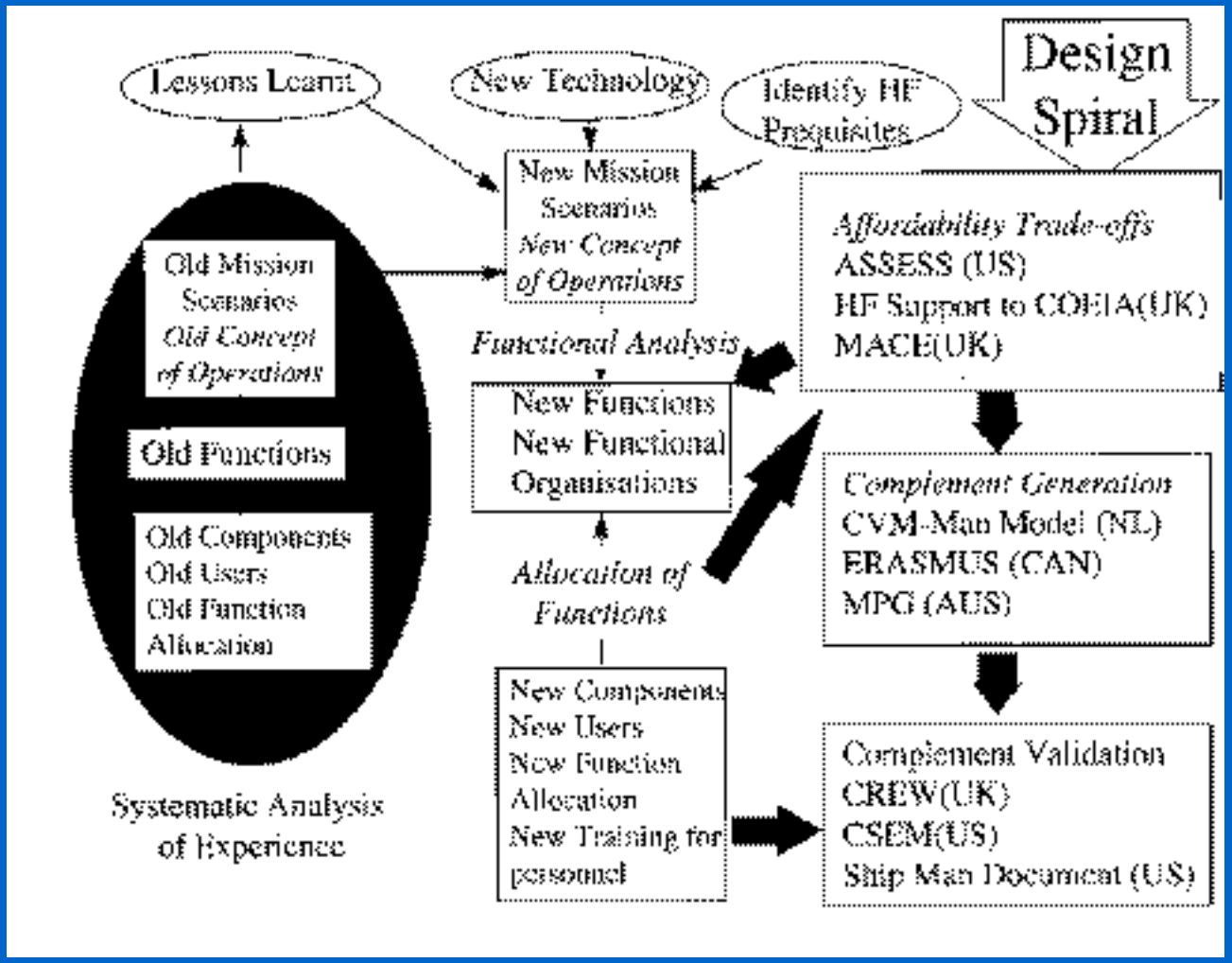
The sum of all the personnel required to perform the tasks comprising the functions is the initial manning estimate.

It must be adjusted to account for personnel who may perform more than one task, the condition watchstanding system, trade and rank progression, margins, and personnel intensive evolutions.

Organizational constraints

Manpower on Canadian warships is organised around the **divisional system**. In effect, this system groups individuals by Military Occupational Code (MOC) for workload, training and administrative purposes. It also provides a military hierarchical structure for leadership and discipline.

TTCP Manning Experts' Process



Manning Study Steps

- Review reference documents (SOR, COE, etc)
- Derive list of functions
- Perform function allocation and trade-off analysis
- Derive list of tasks for each function
- Assign tasks to MOCs
- Adjust proposed crew breakdown for multitasking, training, military hierarchy
- Perform simulation based verification

Deliverables

- Project Management Plan
- Report on the list of functions
- Report on function allocation and trade-off analysis
- Report on the list of tasks for each function
- Report on the assigned task breakdown
- Report on the proposed crew breakdown
- Report on the verification effort
- Presentation summarizing the work

Conclusions

- Varying mission profile makes ALSC good candidate for Top Down Functional Allocation approach
- Contracted study to be let to estimate manning:
  - Process more important than the end number
  - Minimal direction on how to conduct study
  - Some constraints simplify study but add manpower
  - Detailed documentation to:
    - generate discussion
    - serve as baseline for alternative manning concepts
    - allow revisiting the function allocation
    - provide foundation for further HSI work